Physician's Guide for Medical Care of Children Exposed to Methamphetamine Laboratories

Purpose

Children living in homes where there is a clandestine methamphetamine lab are at risk for many things including chemical exposure, physical and sexual abuse, neglect, developmental delay, mental health problems, and behavior problems. This guide has been developed to guide appropriate evaluation and management. An exposure record is available from the child welfare worker to detail the chemicals and exposures noted at the site.

Types of Chemicals Used in Clandestine Methamphetamine Labs

Methamphetamine can be made using one of several different chemical processes. All start with ephedrine or pseudoephedrine, often in large amounts. Most methods include the use of:

a. solvents, including volatile organic compounds (VOCs),toxic alcohols, and ether;
b. caustic compounds such as hydrochloric acid, sulfuric acid, sodium hydroxide, and anhydrous ammonia;
c. water-reactive metals such as lithium or sodium; and,
d. a variety of chemical salts. The "red phosphorous " method may involve exposure to phosphorous and heavy metals. Many steps are involved and they are often inexpertly performed. As a result, a person can easily be exposed to hundreds of different chemicals.

Health Effects

Exposure to these chemicals may produce the symptoms of:

a. stimulant overdose (methamphetamine or ephedrine/pseudoephedrine);
b. burns from caustic compounds (strong acids or bases, lithium, sodium, or anhydrous ammonia);
c. pulmonary damage (anhydrous ammonia or other gases);

d. Central Nervous System (CNS) depression;
e. cardiac sensitization (volatile organic compounds);and,
f. other toxicity from exposures to metals, solvents, and other compounds.

Potential effects depend on the *specific chemical* to which a person is exposed, the *route* of exposure, the *dose* of exposure, the *duration* of exposure, and *specific vulnerabilities* of the individual (e.g., children). Methamphetamine is a long-acting synthetic amphetamine with sympathomimetic effects including hypertension, tachycardia, tachypnea, sweating, and dilated pupils. Exposure may be by injection, snorting, smoking or ingestion. Toxic exposure can result in hypertensive crisis, tachydisrhythmias, agitation, paranoid ideation, seizures, and intercranial bleeding.

Management of a Child Exposed to a Methamphetamine Lab

The following information is presented for physicians as a guide based on previous experience with children exposed to methamphetamine labs. It is not intended to replace the judgment of medical professionals involved in assessing the health risks of children and providing medical care.

Initial Medical Assessment (conducted at a hospital emergency room or other urgent care facility)

For children taken into DCFS custody, this assessment is done as part of the Initial Health Screening.

1. Perform a complete physical exam. Particular attention should be paid to the child's neurologic screen, respiratory rate, skin condition, and gastro-intestinal problems.

2. Contact the Poison Control Center if clinically indicated at (800) 222-1222.

3. Perform the following clinical evaluations as ordered by the physician.
   a. Vital signs, including core temperature, height, weight, and head circumference
   b. Body chart for abuse
   c. Nutritional assessment

d. Complete metabolic panel, including
    i. BUN/Creatinine
    ii. Liver Function Tests
    iii. Electrolytes
    iv. Total protein
    v. Albumin
e. Complete Blood Count
f. Urine toxicology screen
g. Lead screen
h. Oxygen saturation (Pulse oximetry)
i. Chest x-ray, if symptoms indicate

Note: Due to the time sensitive nature of the urine toxicology screen required per this protocol, please collect the urine sample from the child immediately upon arrival at the medical facility, even if there will be a wait for the remainder of the exam and medical tests and procedures to be performed.

4. If available and feasible for the child, the following tests should be added to the above list:
    a. Pulmonary function tests for children five years old and above
    b. Heavy metals screen

5. For any positive findings, indicate what follow up care should be provided. Document findings and follow-up recommendations. For children taken into DCFS custody, please also document on the HealthWorks Health Services Encounter Form.

A urine specimen should be collected from each child within 12 hours of identification because some chemicals/drugs are eliminated in a short time. Report urine test results at any detectable level, not just those above the established thresholds since children at the illegal lab may have been exposed to low doses of drugs from accidental or environmental exposure, (as opposed to dose levels taken by users).

Note: If any tests are run for forensic purposes, chain of custody procedures with confirmatory test results must be used. These would typically include but not be limited to urine toxicology testing and liver function tests.

Follow up Care (performed by a physician)

1. Follow up on the results from any tests conducted at the initial medical assessment.

2. Follow Up Visit/Comprehensive Health Evaluation - Required components of the Follow up visit, based on the child's age and medical history, include:
    - Unclothed physical examination, including height, weight, and head circumference
    - Asthma screening
    - Hearing screening
    - Vision screening
    - Oral health screening
    - Immunizations appropriate to the child's age and medical history
    - Laboratory screens including TB, anemia, lead, sickle cell, HIV, STD, hepatitis B, hepatitis C if indicated by liver function test results
    - Other lab tests as indicated
    - Referrals to specialists and other care as indicated

3. For children who are in the care and custody of the Department of Children and Family Services, the follow up visit is completed as part of the HealthWorks Comprehensive Health Evaluation.

    The HealthWorks Lead Agency staff will provide a copy of the child's medical records that are available to the physician conducting the Comprehensive Health Evaluation. This includes records of the physical exam, body chart for abuse, and laboratory results received as part of the Initial Health Screening.

4. For children known or suspected born to a woman using methamphetamines during pregnancy, have a chromosome analysis performed.

5. Review results from any clinical evaluations or lab tests performed at the initial medical assessment and develop a treatment or monitoring plan if indicated by the test results.

6. If any abnormal findings are yielded from any of the above exams or tests, prescribe and schedule intervention and follow up appropriate to the findings. If the child requires medical intervention, develop a plan for appropriate treatment and follow up. In addition, or if no abnormal findings are discovered, routine follow up visits are scheduled as required by the ongoing care protocol.

Note: Developmental and mental health assessments may need to be performed by professionals other than the physician performing the Follow up visit/Comprehensive Health Evaluation.

Ongoing Primary Health Care Protocol (performed by the primary care physician)

1. The routine scheduled visits will occur according to the Early Periodic Screening Detection and Treatment (EPSDT) schedule as listed in the Illinois Department of Healthcare and Family Services (DHFS) Handbook for Providers of Healthy Kids Services, Chapter HK-200: Policy and Procedures for Healthy Kids Services, or as required by DCFS.

2. Perform a comprehensive physical exam consistent with the DHFS Healthy Kids guidelines and conduct laboratory tests as needed.

3. Long term follow up care visits focus on checking organ systems and mental health indicators that might reveal late developing signs and symptoms of damage from the lab exposure.

4. Plan follow up treatment or adjust any existing treatment for any medical problems identified during the exam.

5. The physician and caregiver will plan follow up strategies for any developmental, mental health, or placement needs identified. In cases where the Department has custody and is legally responsible for the child, the Permanency Worker also will be involved in this planning process.